

E-PROVENDER TRADING SYSTEM

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ABSTRACT:

Ration distribution system is one of the widely controversial officers that involve corruption, illegal smuggling goods and there are no specific high-tech technologies to automate the job. Our main objective here is to automate the process of the distribution and also avoid the corruption. Here it has been implementing to assist ration products in any ration shop. We provide RFID card for every person with password and the person used that card to buy their products. After received their products with specified quantity, the information of deliver is send as a message to their mobile through GSM technology.

Keywords: *Microcontroller, GSM, RFID, LCD, Keypad*

1. INTRODUCTION

The most of the people having a ration card to buy the materials from the ration shops. When get the material from the ratio shop, first need to submit the ration card and they will put the sign in the ratio card depends on the materials. Then they will issue the materials through weighting system with help of human. But in this system having two draw backs, first one is weight of the material may be inaccurate due to human mistakes and secondly, if not buy the materials at the end of the month, they will sale to others without any intimation to the government and customers. In this paper, we have proposed an Automatic Ration Materials Distribution Based on GSM and RFID Technology to avoid the drawbacks. Today we are facing a number of transport related problems. RFID technology effectively used to solve some of them. RFID is act as ratio card and other purpose such as RC book, insurance details, service details etc. GSM used to communicate the information between the two people or more than two persons to update the information depends on the requirements.

Radio-frequency identification (RFID) based access-control system allows only authorized or responsible persons to get the materials from ration shops. An RFID system consists of an antenna or coil, a transceiver (with decoder) and a transponder (RF tag) electronically programmed with unique information. There are many types of RFID systems available in the market. RFID classified based on their frequency ranges. Some of the most commonly used RFID kits are low-frequency (30-500 kHz), mid-frequency (900 kHz-1500MHz) and high-frequency (2.4-2.5GHz). The passive tags are lighter and less expensive than active tags. Global system for mobile communication (GSM) is a globally accepted standard for digital cellular communication. GSM is a common European mobile telephone standard for a mobile cellular radio system operating at 900 MHz In the current work, SIM300 GSM module is used. The SIM300 module is a Trainband GSM/GPRS solution in a compact plug in module featuring an industry-standard interface. It delivers voice, data and fax in a small form factor with low power consumption. In this paper, we have designed and implemented an Automatic Ration Materials Distribution Based on GSM and RFID Technology. In this system, only authentic person can be recovered ration materials from ration shops based on the amount available in the RFID.

2. RELATED WORKS

Today mobile phone is one of the most important devices for every one that is used in communication purpose and used in embedded system to control the devices. In the RFID based Bill Generation and Payment through Mobile system is implemented. In this paper, the bill generating in super market using RFID technology and payment through mobile phone. Mobile payments will become one of the most important mobile services. The most essential consideration is the security of the mobile devices and the applications along with the complexity of imbursement process. Advantages of this system, i) Increased consumer confidence, leading to increased sales. ii) Benefit for both consumers and merchants.

The RFID emerges as one of the converging technologies and transportation plays a vital role in auto ID applications like RFID contact less smart cards used by bus riders, in Super market, Textiles and logistics chain management. In the RFID Based Embedded System for Vehicle Tracking and Prevention of Road Accidents system is designed and implemented. This system may be to reduce the road accident in Indian roads.

In the RFID Based Exam Hall Maintenance System presents an efficient method of examination hall management. This system is possible for a student to identify the particular exam hall from any other hall, when they swipe RFID card in a card reader located there. This helps them to identify the floor or get directions to their respective halls immediately. The card reader is provided at the entrance of the building, if the students enters wrongly a buzzer alarm sets off, otherwise the room number is displayed on the LCD, connected to controller. RFID technology is emergent technology that can be used in wide range of applications.

In today's, power saving are very important and difficult. Even though there are many power generation methods available, but it has become very difficult to generate the power due to insufficient resources. Power saving is necessary for our society, this paper discussed about the power saved in the streetlights. The key objective is to control the streetlights using Dual Tone Multi Frequency (DTMF). If any over load occurs, the connection disconnected and the information transferred to EB through Global System for Mobile communication (GSM). If it is any complaint by the consumers, they can send the information to EB through Radio Frequency Identification (RFID) Reader, which is fixed in one of the street light posts and the tag provided to the all consumers. The messages send to EB server through GSM. Advantage of this system, power consumption is very less, power failure period reduced.

3. PROPOSED METHOD

The block diagram of an Automatic Ration Materials Distribution Based on GSM and RFID Technology as shown in fig.3.1. This system consists of various parts such as RFID, GSM modem, microcontroller, buzzer, max 232 module and keypads.

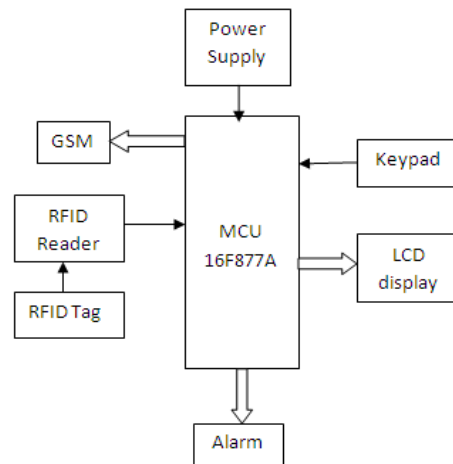


Figure 3.1:Block Diagram for Automatic Ration Materials Distribution Based on GSM and RFID Technology

3.1.Power Supply

Available power source is an Ac voltage arrives at 230V. Since our electronic circuits require only very minimal voltage and current we use step down power transformer. Step down transformer is designed in such a way that the input is 230V and output of 12V. Another thing is, that electronic circuits operate in DC whereas available output of transformer is Ac of 12V. So rectifier circuit is used to convert AC to DC. Rectifier circuit consists of four diodes formed in bridge fashion so as to convert incoming AC to DC.

Even though output of rectifier circuit is DC it is not smooth or fixed DC. So filter circuits are used to convert rippling DC to smooth DC. The filter circuit is a capacitor, connected parallel to the output of rectifier circuit. This smooth DC voltage will be in the range of 12+volt. But we require only 5V supply for the operation of micro controllers and it's supporting components. Here again regulator ICs such as 7805 is used to regulate the incoming 12VDC to fixed regulated 5V as output. This DC regulated 5V is applied to the circuits.

3.2. Microcontroller

Microcontroller is the heart of the ration materials distribution system. There are used various application such as automatically controlled products, automobile engine control systems, to control medical devices, remote controls, printer, scanner, office machines, appliances, power tools, toys and other embedded systems. The size and cost of the microcontroller are less.

Here we used Pic microcontroller (16F877A), it comes in 40pin and it has many internal peripherals, large memory. It has 8K words and 368bytes of RAM. Compare to normal CMOS it has ultra-low power operation. It has internal clock of 8Mhz to 31Khz and it has 1% accuracy. The PIC start plus development system from microchip technology provides the product development engineer with a highly flexible low cost microcontroller design tool set for all microchip PIC micro devices. The PIC start plus development system includes the PIC start plus development programmer. The PIC start plus programmer gives the product developer ability to program user software in to any of the supported microcontrollers.

3.3. RFID Reader and Tag

Radio Frequency Identification (RFID) is a generic term that is used to describe a system that transmits the identity (in the form of a unique serial number) of an object or person wirelessly, using radio waves. It's grouped under the broad category of automatic identification technologies. A unique serial number is stored on a microchip that is the size of the period at the end of this sentence. A tiny antenna is also attached to the microchip. Together, the chip and antenna are called a tag. Typical tags range in size from a stamp to a credit card. The built-in antenna allows the tag to receive information from a device called a reader. When commanded by the reader the tag transmits information over the air using radio waves. The reader then converts the radio waves from the tag into digital information that's forwarded to a downstream computer.

Radio-frequency identification (RFID) is an automatic identification method, relying on storing and remotely retrieving data using devices called RFID tags or transponders. An RFID tag[2] is an object that can be applied to or incorporated into a product, animal, or person for the purpose of identification using radio waves. Some tags can be read from several meters away and beyond the line of sight of the reader. Most RFID tags contain at least two parts. One is an integrated circuit for storing and processing information, modulating and demodulating a (RF) signal, and other specialized functions. The second is an antenna for receiving and transmitting the signal. A technology called chip less RFID allows for discrete identification of tags without an integrated circuit, thereby allowing tags to be printed directly onto assets at a lower cost than traditional tags.

3.4. GSM Module

GSM (Global System for Mobile communications: originally from **Group Special Mobile**)[4] is the most popular standard for mobilephones in the world. Its promoter, the GSM Association, estimates that 80% of the global mobile market uses the standard. GSM is used by over 3 billion people across more than 212 countries and territories. Its ubiquity makes international roaming very common between mobilephone operators, enabling subscribers to use their phones in many parts of the world[3]. GSM differs from its predecessors in that both signaling and speech channels are digital, and thus is considered a second generation (2G) mobile phone system. This has also meant that data communication was easy to build into the system.

3.5. LCD Display

LCD stands for liquid crystal. This is a output device with a limited viewing angle. The choice of LCD as an output device was because of its cost of use and is better with alphabets when compared with a 7-segment LED display. We have so many kinds of LCD today and our application requires a LCD with 2 lines and 16 characters per line, this gets data from the microcontroller and displays the same. It has 8 data lines, 3 control line, a supply voltage Vcc (+5v and a GND. This makes the whole device user friendly by showing the balance left in the card. This also shows the card that is currently being used.

In recent years the LCD is finding widespread use replacing LED's. This is due to the following reasons:

1. The declining prices of LCD's.
2. The ability to display numbers, characters and graphics. This is in contrast to LED's, which are limited to numbers and few characters.

3. Incorporation of a refreshing controller into the LCD, there by relieving the CPU of the task of refreshing the LCD .in contrast, the Led must be refreshed by the CPU to keep displaying the data.

4. Ease of programming for characters and graphics.

3.6. Keypad

Keypad is a widely used input device with lots of application in our everyday life. From a simple telephone to keyboard of a computer, ATM, electronic lock, etc. keypad is used to take input from the user for further processing. In this article we are interfacing keypad with the PIC MCU 16F877A and displaying the corresponding number on LCD. This module can be further used in a number of systems to interfaced keypad with microcontroller and other processors to get desired output. The program to interface keypad with controller is written in C language which is very easy to understand.

A keypad is a set of buttons arranged in a block or pad which usually bear digits, symbols and usually a complete set of alphabetical letters. If it mostly contains numbers then it can also be called a numeric keypad. Keypads are found on many alphanumeric keyboards and on other devices such as calculators, push-button telephones, combination locks, and digital door locks, which require mainly numeric input.

3.7. Buzzer

A **buzzer** or beeper is a signaling device, usually electronic, typically used in automobiles, household appliances such as a microwave oven, or game shows. It most commonly consists of a number of switches or sensors connected to a control unit that determines if and which button was pushed or a preset time has lapsed, and usually illuminates a light on the appropriate button or control panel, and sounds a warning in the form of a continuous or intermittent buzzing or beeping sound.

Initially this device was based on an electromechanical system which was identical to an electric bell without the metal gong (which makes the ringing noise). Often these units were anchored to an electrical bell without the ceiling or wall as a sounding board. Another implementation with some AC-connected devices was to implement a circuit to make the AC current into a noise loud enough to drive a loud speaker and hook this circuit up to a cheap 8 ohm speaker.

4. RESULT AND DISCUSSION

The Automatic Ration Materials Distribution Based on GSM and RFID Technology used to distribute or vend the liquid or solid material, which is used for Ration materials distribution in ration shops. Initially everyone will be provided an RFID or smart Card, instead of a ration card. If the customer needs to get any ration material, the user has to show the ration RFID tag card to the RFID reader Kit, the reader that is incorporated with the project kit will recognize the RFID numbers show by the user. Each user will have a unique number, which is not visible to the user.

This recognized RFID number will be given to a microcontroller, which compared the input number with the database. Before starting the system, the unique RFID number of the ration user will be programmed in the

controller, such as User name & address details, date of expire of ration card, etc., so that the controller will recognize the data coming from RFID by comparing with the database.

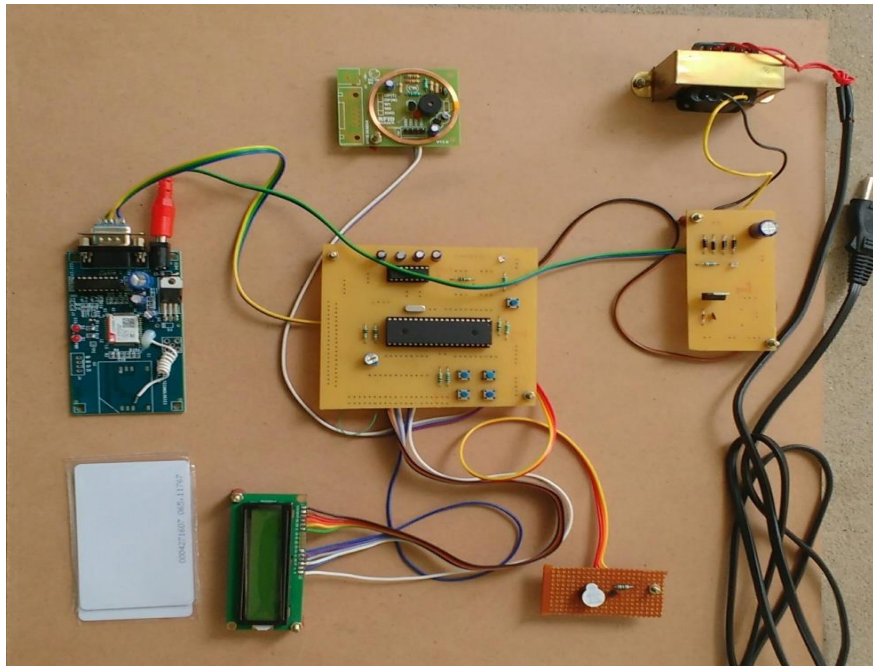


Figure 4.1 Physical Construction of Smart Ration Materials Distribution

Once the user is identified, the microcontroller will check whether the user has already bought the ration item belongs to that month. If not then, ration items to be dispensed will be displayed on the LCD screen, the user has to feed the comments that which ration item he is going to buy. If the user, select the ration item for purchasing purposes then the controller will calculate the amount of his or her buy and check with the amount available in the RFID card. As the dispensing process is going on simultaneously in the controller will send a command to GSM Modem, to send the text SMS to the user about the ration item, he or she purchased. Before starting the process the amount of the item to be dispensed has to be calibrated separately then the only controller will dispense the correct quantity of ration item selected.

5. CONCLUSION

In this paper, we have implemented and tested an Automatic Ration Materials Distribution Based on GSM and RFID technology instead of ration cards. But in the existing system having two draw backs, first one is weight of the material may be inaccurate due to human mistakes and secondly, if not buy the materials at end of the month, they will sale to others without any intimation to the government and customers. The above drawbacks rectified by this method. In this system, ration Materials (wheat, rice, dhal, kerosene, etc) distributed through automatic mechanism without any help of humans and also we can assists Ration items at any Ration shops. After receiving the materials, controller sends the information to government office and customer through GSM technology. This system is very accurate, simple and low power consumption, which is used for the real time applications.

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